IV. Grading

A. Introduction

The Land Use Element of the Chula Vista General Plan states that the mesas, hilltops and gently rolling topography in the Chula Vista area offer the best conditions for development. Steeply sloped hillsides and valleys can serve as resources, linking the developed regions and the important natural features in the area. The goal of the Otay Ranch General Development Plan is to concentrate urban development on the flatter areas and retain the sensitive natural topographic features. For the Eastern Urban Center SPA, the arterial road corridors along the northern and eastern edges include adjacent areas designated for landscaped use. Development sites within the remainder of the SPA should be graded to blend with and create an aesthetically pleasing setting respecting these edges.

The Otay Ranch GDP requires the certain grading provisions for villages, that are to be adjusted herein to reflect the intended urban character of the EUC.

- Geotechnical investigations shall be provided with each SPA plan.
- Relate development to topography and natural features, and strive to retain the character of the land forms to the extent feasible.
- Naturalized buffering be provided as a transition between development and significant existing landforms.
- Variable slope ratios not exceeding 2:1 should be utilized when developing grading plans.
- Eighty-three percent of existing steep slopes greater than 25% ranch-wide should be preserved.

Adjustments to the preceding grading provisions may include the use of stepped retaining walls, angular and steepened slopes, and in general, a more formal urban character for land forms instead grading that attempts to mimic natural terrain.

B. Grading Concept

The SPA level grading plan for the Otay Ranch Eastern Urban Center is intended to provide a preliminary grading concept, identifying slope bank locations and necessary maintenance provisions. The overall grading concept is to create one large continuous graded pad for the proposed development, with no significant grade changes except at the perimeter of the development area.

Two preliminary grading design have been prepared as shown in Exhibit IV-1 (Grading Concept) - Option 1, and Exhibit IV-2 (Grading Concept) - Option 2, either of which could be implemented for the proposed development. Both options are considered in the project EIR, and variations between these options is also permitted. Option 1 recognizes anticipated development to the south of the applicant's property and balances grading quantities through the export of material to provide fill on adjacent properties which is also planned for development within the Otay Ranch GDP as Village Nine or the City's university site. Option 2 recognizes that the adjacent property owner(s) may not consent to off-site grading, or other considerations that make off-site grading feasible, and thus balances grading quantities within the proposed project. However, grading for off-site streets is still contemplated in Option 2.

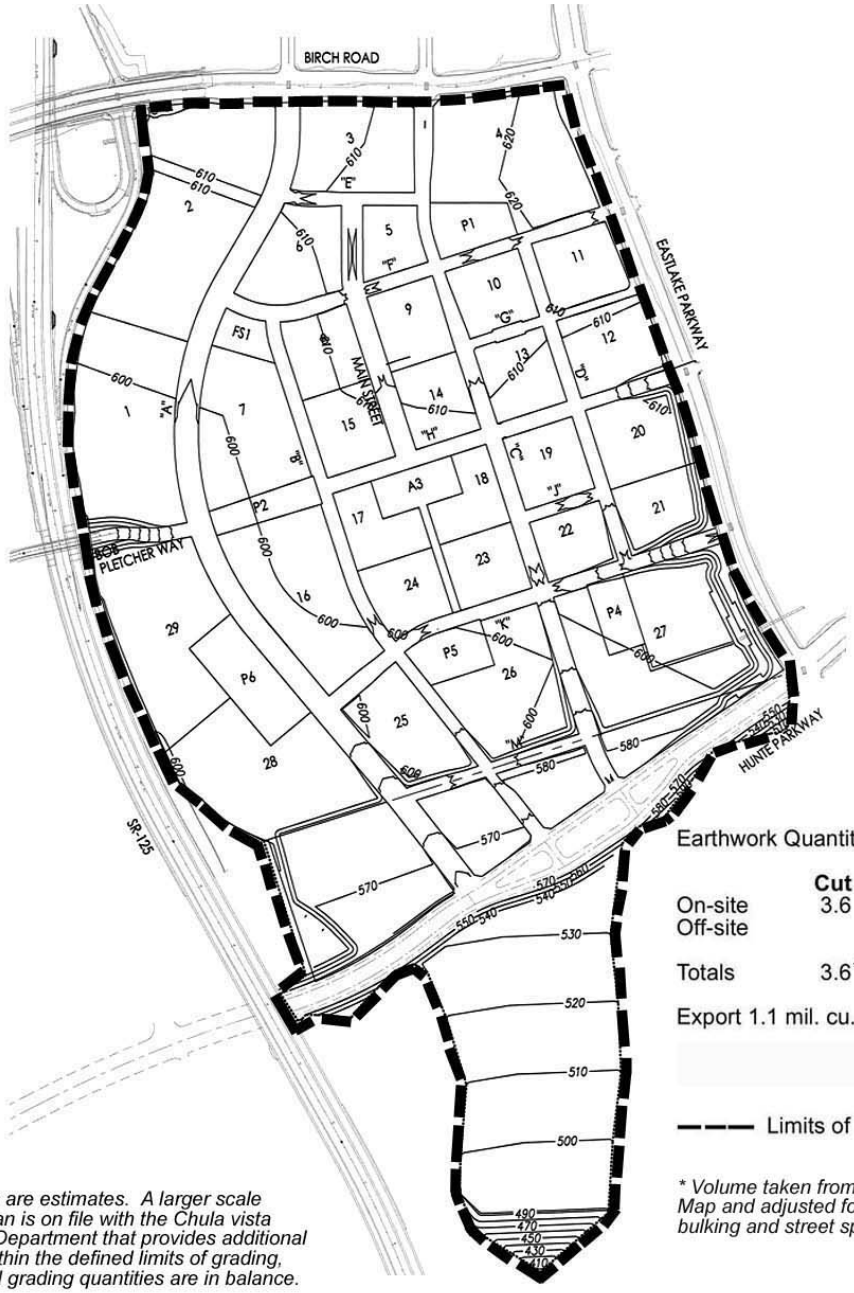
The Eastern Urban Center SPA earthwork is intended to be balanced or an equal amount of cut for an equal amount of fill. The estimated earthwork quantity is 3.6 million cubic yards of cut and fill under Option 1 or approximately 3.2 million cubic yards under Option 2.

The Otay Ranch GDP requires the preservation of 83% of existing steep slopes with gradients of 25% or greater. The 83% of the 25% slopes are in the Otay Ranch Preserve according to the RMP. Otay Ranch has been determined to contain 7,651 acres of land with gradients of 25% or greater. Application of the 83% preservation standard means that 6,350 acres of steep slopes must be preserved ranch-wide and 1,301 acres of steep slopes may be developed. The approved Otay Ranch land plan anticipates that approximately 984 acres of steep slopes will be developed. This falls within the 83% (1,301 acres maximum) standard ranch-wide. The Phase 2 Resource Management Plan (RMP) provides that SPA level analysis of the impacts to steep slopes needs to completed only when a SPA proposes development outside of the GDP approved development areas. The Otay Ranch Biota Monitoring Program establishes a system to ensure that this standard is achieved ranch-wide.

The area of steep (greater than 25%) natural slopes within the Eastern Urban Center SPA is only 0.5% of the total area. For the off-site area that are included in Option 1, Exhibit IV-1 (Grading Concept) there is 9.8% of the area in steep slopes (>25%). The development areas proposed in the SPA land plan are consistent with the developable areas depicted on the approved GDP land use plan (as amended). Because of the consistency between the proposed SPA development plan and the adopted Otay Ranch GDP, the ranch-wide slope preservation goal will be maintained.

The slopes between ownerships have been designed to be compatible, with virtually no difference in the elevation along the southerly property line between the two grading options.

Grading Concept
Option 1



Earthwork Quantities *(mil. cu. yds.)*

	Cut	Fill
On-site	3.6	2.5
Off-site		1.1
Totals	3.6*	3.6*

Export 1.1 mil. cu. yds.

——— Limits of Disturbance

** Volume taken from EUC Tentative Map and adjusted for anticipated bulking and street spoils.*

Notes:
Quantities are estimates. A larger scale Lotting Plan is on file with the Chula vista Planning Department that provides additional detail. Within the defined limits of grading, the overall grading quantities are in balance.

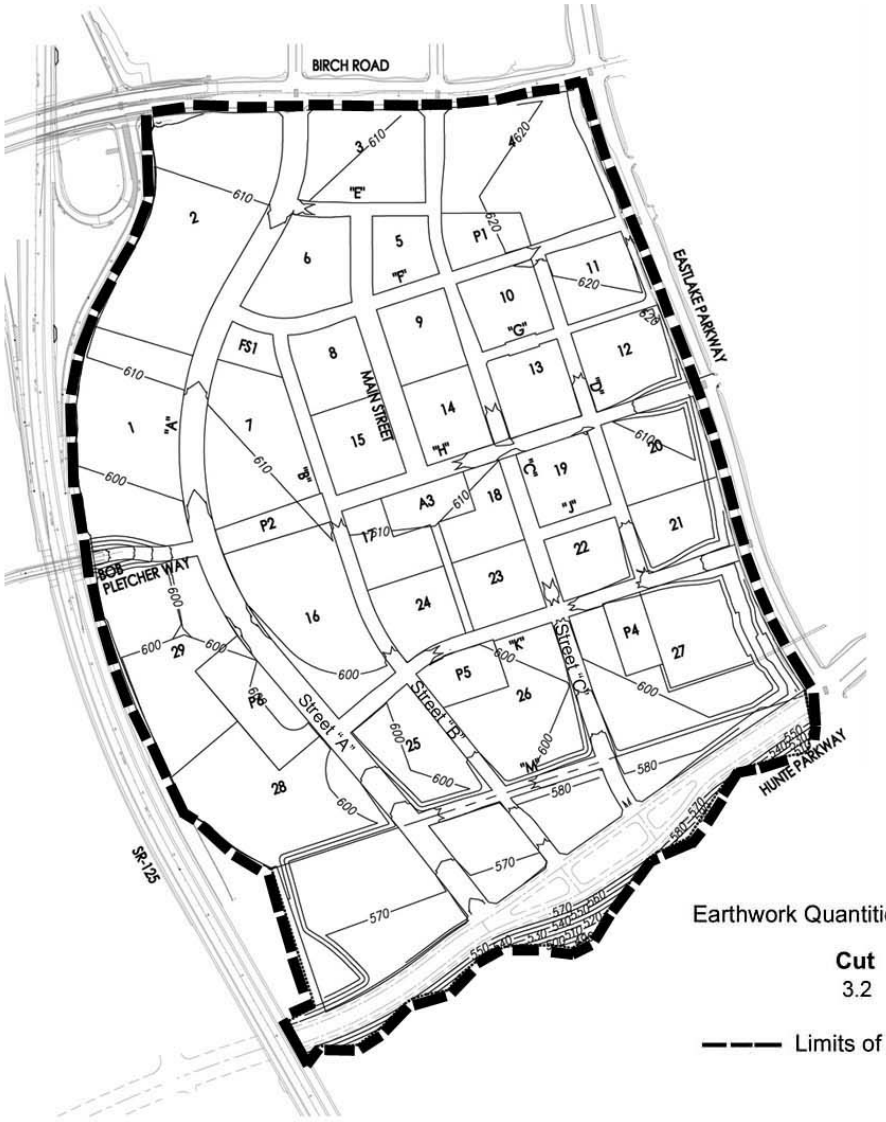
CITY OF CHULA VISTA

Eastern Urban Center
OTAY RANCH

Source: PDC
Urban Design: RTKL
Cinti Land Planning
San Diego, CA (619) 223-7408

Exhibit IV-1

Grading Concept
Option 2



Notes:

1. *Quantities are estimates. A larger scale Lotting Plan is on file with the City of Chula Vista that provides additional detail.*
2. *The actual off-site grading proposed for this alternative will only include those off-site streets, or street elements, necessary to serve the EUC SPA Plan.*

Eastern Urban Center
OTAY RANCH
CITY OF CHULA VISTA

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Exhibit IV-2

C. Grading Policies

Larger manufactured slopes generally occur along and adjacent to the proposed arterial road system and access roads. Internally, neither Grading Concept Options identify significant grade changes, except along certain entry roads. However, where grade differentials are created, retaining structures such as walls or similar design solutions consistent with the urban character of the EUC may be utilized.

The following guidelines shall be considered in implementation of the conceptual grading plan:

- Manufactured slope faces greater than 25 feet in height may be conventional 2:1 or include retaining structures with enhanced planting to avoid excessive "flat planed" surfaces.

- All graded slopes shall be planted to blend with or complement adjacent areas. Where appropriate, vegetation should consist of drought-tolerant native or naturalized species, requiring little or minimal irrigation, be deep rooted and well suited to the on-site soils. Final plans should be based on coordinated input from a licensed landscape architect.

- Based on actual field conditions encountered, the erosion potential of slopes should be reduced with berms at the tops of all slopes, paved interceptor ditches and terrace drains and vegetation, as required. Spray-on applications and coatings, or jute or hemp mesh, if needed, may be effective methods for stabilizing soils.

Internal slopes are typically lower than the perimeter slopes. If however, at the tentative map stage, large grade differentials, in highly visible locations are proposed, structured grade changes should be considered on a case-by-case basis. Small interior slopes between lots may be graded at 1.5 to 1, or within retaining walls, with approval of the City Engineer.

Preliminary soils and geotechnical reports have been prepared for the Otay Ranch Eastern Urban Center SPA and have identified the site as being suitable for development (see Geotechnical Investigation - eastern Urban Center, dated March 1, 2007, by Geotechnics, Inc.). More detailed and refined studies will be provided at the final engineering stages of this project.

D. Storm Water Quality Requirements During Construction

At this time a Storm Water pollution prevention Plan (SWPPP) has not been prepared. However, prior to construction a site specific SWPPP will be prepared in accordance the State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS00002 (General Construction Permit) and the modifications to the General Construction Permit Order No. 2001-046, adopted by the SWRCB.

For coverage by the General Construction Permit, the project owner is required to submit to the SWRCB a Notice of Intent (NOI) to comply with the General Construction Permit, and develop a Storm Water Pollution Prevention Plan (SWPPP) describing best management practices (BMPs) to be used during and after construction to prevent the discharge of sediment and other pollutants in storm water runoff from the project.

Typical temporary BMPs that may be used during construction include good housekeeping practices, erosion control, and sediment control measures. Good housekeeping practices include street sweeping, waste disposal, vehicle and equipment maintenance, materials storage, minimization of hazardous materials and proper handling and storage of hazardous materials. Typical erosion control and sediment control measures include use of silt fences, fiber rolls, gravel bags, temporary

desilting basins, velocity check dams, temporary ditches or swales, storm water inlet protection, soil stabilization measures such as erosion control mats, tackifier, or hydroseed. The project's SWPPP will be required to identify the specific BMPs to be used on the project site during construction. The City of Chula Vista and the California Storm Water Management Handbooks will set the design standards for BMPs on project.

Prior to issuance of grading permits, a SWPPP shall be prepared to the satisfaction of the City Engineer to insure implementation of the BMPs required by the erosion control plan. Potential BMPs that could be used include all those listed in the Eastern Urban Center SPA Plan EIR, and any other BMPs that would meet the requirements of the NPDES. Open, active grading areas will be limited to one hundred (100) acres, unless otherwise approved by the City Engineer.